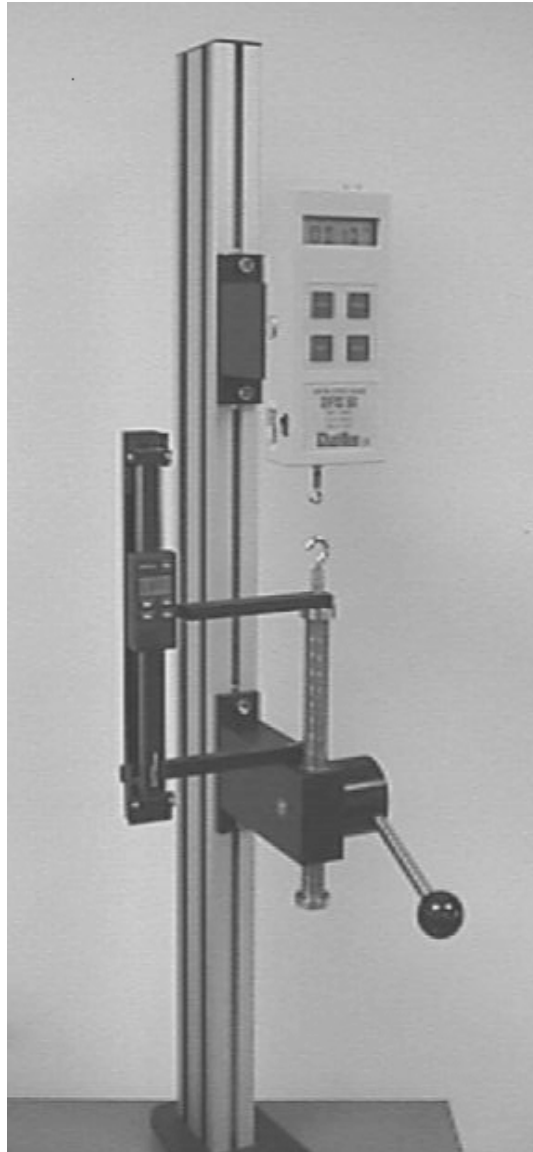


Instruction Manual NC002660
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Issue 1

MODEL MT TENSION/COMPRESSION MECHANICAL TEST STAND



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1. INTRODUCTION

The CHATILLON MT test stand is designed to perform various tension or compression tests utilizing the full range of CHATILLON force gauges. The MT test stand has two available capacities 150 LBF (660 N) and 500 LBF (2.2 KN). Each capacity has a quick-action lever or precision hand-wheel operating mechanism available. The MT test stand can be positioned vertically and mounted to a bench or wall mounted. The MT test stand can also be horizontally mounted and fastened to a bench. The wall mounting and horizontal mounting utilize the same components. The MT column comes in three selectable heights 750mm, 1000mm and 1500mm to accommodate various test sample heights. A ruler assembly is available for measurements that require minimal travel accuracy. A digital indicator is available for measurements that require accurate travel measurements. The MT test stand is lightweight and modular in design. The MT test stand comes with standard accessories that will allow many CHATILLON and LLOYD grips and fixtures to adapt to the test stand.

2. SPECIFICATIONS

2.1. Capacities:	150 LBF (660 N) 500 LBF (2.2 KN)
2.2. Drive Mechanism:	Quick-Action Lever Precision Hand-Wheel
2.3. Travel Rate:	Quick-Action Lever – 75 mm (3 in) per Rev Precision Hand-Wheel – 12 mm (0.5 in) per Rev
2.4. Total Column Length:	Standard – 750 mm (29.5 in) Extended – 1000 mm (39.4 in) Ultra – 1500 mm (59.1 in)
2.5. Stroke:	150 mm (6 in)
2.6. Throat Depth:	150 mm (6 in)
2.7. MT Weight:	89 N (20 LB) approximate weight

3. ASSEMBLY AND SPARE PARTS LIST

3.1. Bench/Wall Mounting

Place MT test stand on a firm, flat level work surface that is free from vibration to ensure accurate readings. It is recommended that the MT test stand is vertically mounted to a work bench utilizing the four Ø8 mm (Ø.31 in) holes in the base. For horizontal or wall mounting there are four Ø8.5mm (Ø.33 in) holes in two mounting plates that are used for mounting the MT test stand to a bench or wall.

3.2. Force Gauge Mounting Kits

PART NUMBER	FORCE GAUGE	① MTG ADAPTER	② MTG SCREW	③ MTG SCREW	④ LOCKING SCREW	⑤ MTG PLATE	⑥ HEX KEY 5/32"
SPK-MT-0001	DPP/DFGS/DFA/LG	NTT/0186	01-90027	N/A	SCT/0292	N/A	NC000846
SPK-MT-0002	DPPH/DFIS	NC002699	01-90036	E08-240	SCT/0292	NC002700	NC000846
SPK-MT-0003	DFM	NTT/0187	01-90027	N/A	SCT/0292	N/A	NC000846
SPK-MT-0004	DFT	NC002701	01-90036	3573	SCT/0292	NC002700	NC000846

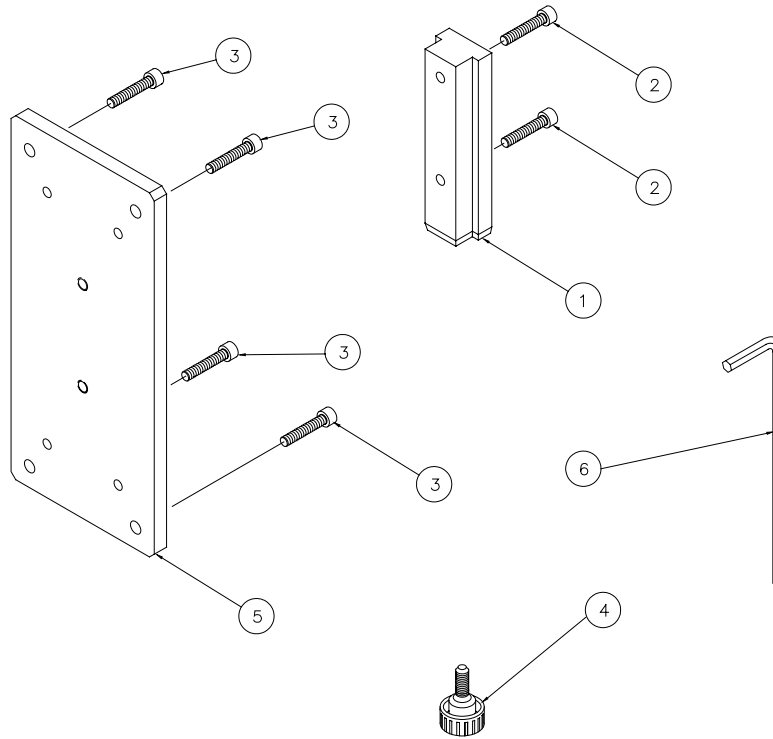
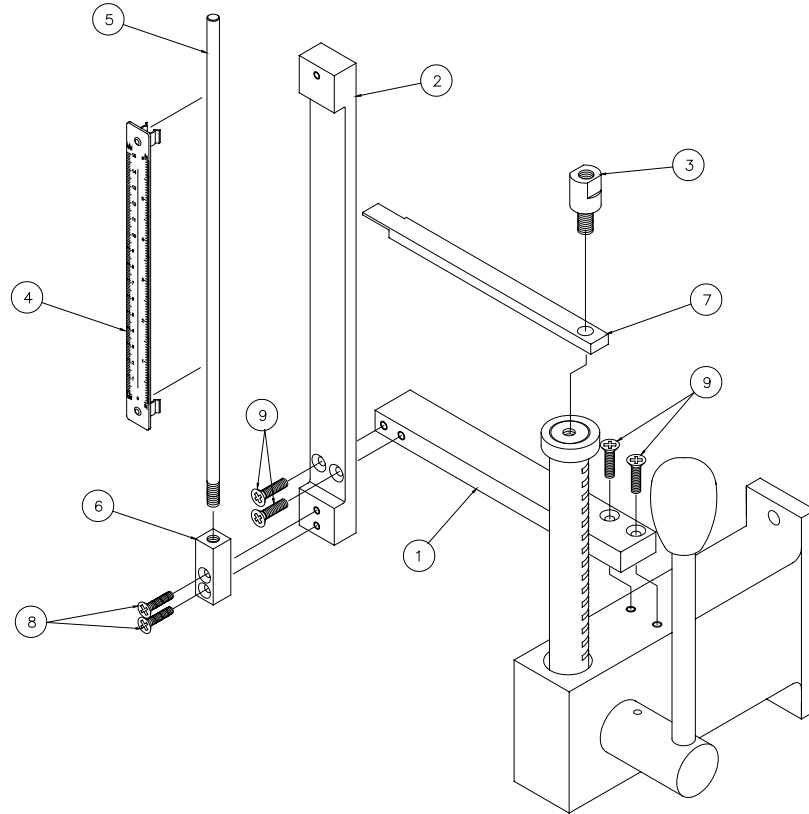


FIGURE 1

When ordering a force gauge mounting kit the parts shown in FIGURE 1 will be supplied as indicated.

3.3. Ruler Assembly Kit

PART NUMBER	① CROSS BEAM	② MTG PLATE	③ ADAPTER 5/16-18	④ RULER ASSEMBLY	⑤ ROD, RULER	⑥ ROD HOLDER	⑦ POINTER ARM	⑧ SCREW #8-32 X 3/4	⑨ SCREW #10-32 X 3/4
SPK-MT-RULER	NC002702	NC002703	NC002706	23132	12139	NC002707	NC002708	E08-237	E08-238

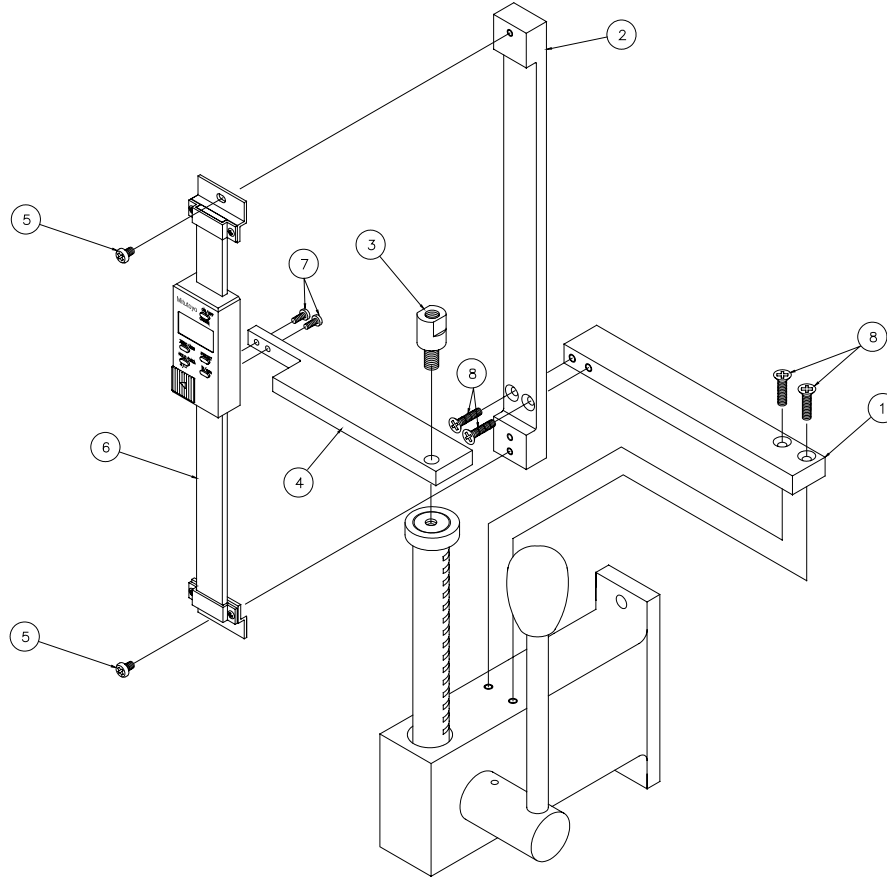


The ruler assembly instructions are as follows:

- 3.3.1. Assemble CROSS BEAM (Item 1) to top of lever or hand-wheel assembly of MT test stand using two SCREWS (Item 9).
- 3.3.2. Assemble MTG PLATE (Item 2) to CROSS BEAM (Item 1) using two SCREWS (Item 9).
- 3.3.3. Thread RULER ROD (Item 5) to ROD HOLDER (Item 6).
- 3.3.4. Assemble ROD HOLDER (Item 6) to MTG PLATE (Item 2) using two SCREWS (Item 8).
- 3.3.5. Press on RULER ASSEMBLY (Item 4) to RULER ROD (Item 5).
- 3.3.6. Assemble POINTER ARM (Item 7) to movable RACK on MT test stand using 5/16-18 ADAPTER (Item 3). The pointer arm should be located in front of the ruler assembly.

3.4. Digital Indicator Assembly Kit

PART NUMBER	① CROSS BEAM	② MTG PLATE	③ ADAPTER 5/16-18	④ ACTUATOR ARM	⑤ SCREW #8-32 X 1/4	⑥ DIGITAL INDICATOR	⑦ SCREW #5-40 X 5/16	⑧ SCREW #10-32 X 3/4
SPK-MT-DIGITAL	NC002702	NC002703	NC002706	NC002704	E08-236	NC002705	E08-237	E08-238

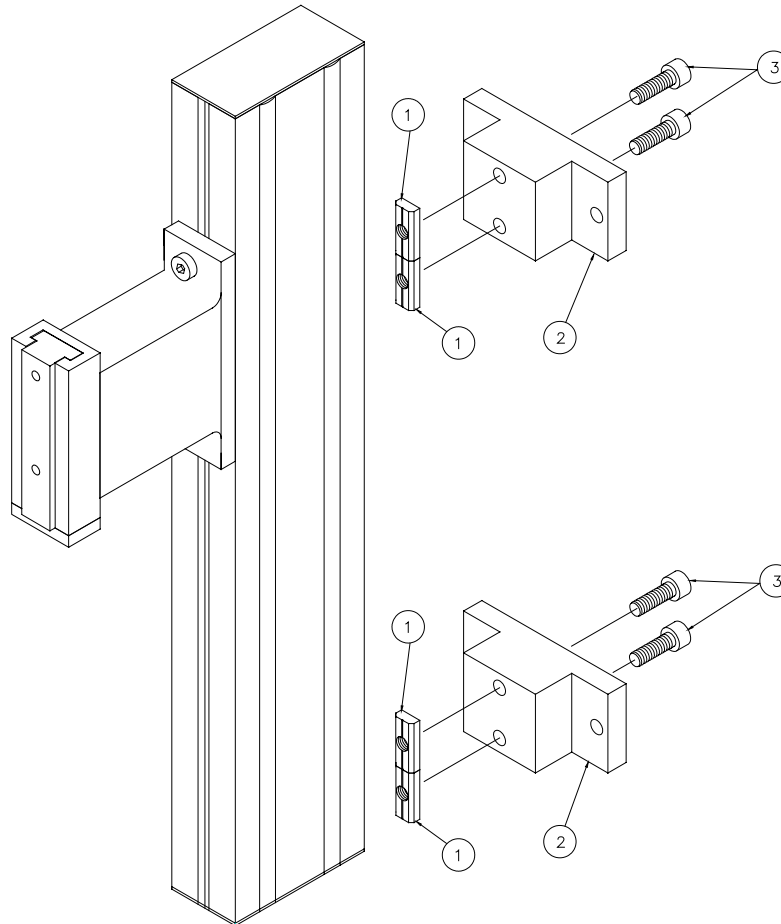


The digital indicator assembly instructions are as follows:

- 3.4.1. Assemble CROSS BEAM (Item 1) to top of lever or hand-wheel assembly of MT test stand using two SCREWS (Item 8).
- 3.4.2. Assemble MTG PLATE (Item 2) to CROSS BEAM (Item 1) using two SCREWS (Item 8).
- 3.4.3. Assemble ACTUATOR ARM (Item 4) to the lower two screw holes of the DIGITAL INDICATOR (Item 6) using two SCREWS (Item 7).
- 3.4.4. Assemble DIGITAL INDICATOR (Item 6) to MTG PLATE (Item 2) using two SCREWS (Item 5).
- 3.4.5. Assemble ACTUATOR ARM (Item 4) to movable RACK on MT test stand using 5/16-18 ADAPTER (Item 3).

3.5. Horizontal / Wall Mounting Kit

PART NUMBER	① LONG NUT	② MTG PLATE	③ SCREW M8 x 25mm
SPK-MT-WALL-HORZ	NTT/0193	PLT/1219	70104408025



The Horizontal/Wall mounting assembly instructions are as follows:

- 3.5.1. Remove top plastic cap from top of column using a small screw driver.
- 3.5.2. Assemble two SCREWS (Item 3) to MTG PLATE (Item 2) and thread on two LONG NUTS (Item 1).
- 3.5.3. Slide bottom mounting plate assembly to lower part of the MT test stand column and fully tighten two screws using a 6mm hex key.
- 3.5.4. Repeat step 3.5.2 for the top mounting plate assembly.
- 3.5.5. Slide top mounting plate assembly to upper part of the MT test stand column and fully tighten two screws using a 6mm hex key.
- 3.5.6. The four Ø8.5mm (Ø.33 in) holes in the two mounting plates are used for mounting the MT test stand to a bench (horizontally) or wall (vertically).
- 3.5.7. Replace the top plastic cap to the column by pressing it on.

3.6. Additional Spare Part Kits

3.6.1. Column Assemblies

SPK-MT-0750	750 mm (29.5 in) Standard Column Assembly
SPK-MT-1000	1000 mm (39.4 in) Extended Column assembly
SPK-MT-1500	1500 mm (59.1 in) Ultra Column Assembly

3.6.2. Load Actuation Assemblies

SPK-MT-L150	Lever Actuation Model, 150 LB
SPK-MT-L500	Lever Actuation Model, 500 LB
SPK-MT-H150	Hand Wheel Actuation Model, 150 LB
SPK-MT-H500	Hand Wheel Actuation Model, 500 LB

3.6.3. Miscellaneous Spare Parts

SPK-MT-GBLK	Gauge Mounting Block Assembly
SPK-MT-BASE	Base Plate Assembly
SPK-MT-HW150	Hand Wheel, 150 LB
SPK-MT-HW500	Hand Wheel, 500 LB
SPK-MT-REMOTE	Remote load cell MTG kit (250 G to 200 LB)

4. STANDARD ACCESSORIES

The Standard accessories that come with the MT test stand are as follows:

NC000714	Hex Key, 6mm
NC002660	Operation Manual
SPK-FMG-012B	Hook Assembly, 150 LB (STD with 150 LB test stand)
SPK-FMG-012C	Hook Assembly, 500 LB (STD with 500 LB test stand)
17012	Compression Platen, Ø3 in
NC002686	Set Screw, 5/16-18 X 1 in
P-10020	Adapter, 5/16-18 M to #10-32 F (STD with 150 LB test stand)
NC002292	Registration Card
13048	Coupling, 1/4-28 F to 5/16-18 F
ADT/0115	5/16-18 F to 5/8 in Eye End
3157	Set Screw, #10-32 X 3/4 in (STD with 150 LB test stand)

5. COMPRESSION TESTING PROCEDURE

- 5.1. Establish the platform location in reference to its travel so that the deflection requirements for the test to be made will be accomplished before the platform reaches the limit of its stroke. For example: if the test requires 2 inches of deflection, ensure the platform will travel the required 2 inches before stopping. Allow additional travel for the deflection of the force gauge.

- 5.2. Center the test specimen on platform and adjust height of force gauge above platform to desired height using the 6mm hex key provided.
- 5.3. If deflection measurements using the ruler assembly are required, take note of reading on ruler when gauge plate touches the test specimen. This point can be determined by monitoring the force gauge indicator while slowly raising the platform. Stop the platform travel the moment a force is registered on the gauge and then back off very slightly. At this point, note the reading on the ruler. The ruler may be adjusted on the rod to line up with the pointer for easier reading. The CHATILLON force gauges have different deflection and this must be accounted for when taking deflection measurements. Refer to TABLE 1 for deflection of each model gauge at full scale. Example: If A DPP 50 LB gauge was loaded at 50 LB (full scale) and the deflection on the ruler indicated 2.0 inches, the true movement of the sample was 1.9 inches due to the shaft of the DPP force gauge moving 0.1 inches.

Gauge Model	Load Cell/Spring Deflection
DPP, DPPH	.100 inches at full scale (1 revolution)
LG/DG	10mm (.394 inches) at full scale (1 revolution)
DFM	.015 inches at full scale
DFIS	.007 inches at full scale
DFGS integral load cell	.010 inches at full scale
DFGS-R 250 g to 10 LB	.015 inches at full scale
DFGS-R 50 LB to 500 LB	.006 inches at full scale

TABLE 1

- 5.4. When using the digital indicator it is necessary to compensate for deflection of the force gauge when performing a compression test. To obtain the true deflection of the test specimen refer to TABLE 1 for the full scale deflection for each force gauge model. Example: If A DPP 50 LB gauge was loaded at 25 LB (half scale) and the deflection on the digital indicator was 2.000 inches, the true movement of the sample was 1.950 inches due to the shaft of the DPP force gauge moving .05 inches.

6. TENSION TESTING PROCEDURE

- 6.1. Establish the platform location in reference to its travel so that the deflection requirements for the test to be made will be accomplished before the platform reaches the limit of its stroke. For example: if the test requires 2 inches of deflection, ensure the platform will travel the required 2 inches before stopping. Allow additional travel for the deflection of the force gauge.
- 6.2. Place test specimen in upper grip or hook and zero the force gauge. Then attach test specimen to lower grip or hook.
- 6.3. If deflection measurements using the ruler assembly are required, take note of reading on ruler when the test specimen is taut between the grips or hooks. This point can be determined by monitoring the force gauge indicator while

slowly lowering the lower grip or hook. Stop the platform travel the moment a force is registered on the gauge and then back off very slightly. At this point, note the reading on the ruler. The ruler may be adjusted on the rod to line up with the pointer for easier reading. The CHATILLON force gauges have different deflection and this must be accounted for when taking deflection measurements. Refer to TABLE 1 for deflection of each model gauge at full scale. Example: If A DPP 50 LB gauge was loaded at 50 LB (full scale) and the deflection on the ruler indicated 2.0 inches, the true movement of the sample was 1.9 inches due to the shaft of the DPP force gauge moving 0.1 inches.

- 6.4. When using the digital indicator it is necessary to compensate for deflection of the force gauge when performing a tension test. To obtain the true deflection of the test specimen refer to TABLE 1 for the full scale deflection for each force gauge model. Example: If A DPP 50 LB gauge was loaded at 25 LB (half scale) and the deflection on the digital indicator was 2.000 inches, the true movement of the sample was 1.950 inches due to the shaft of the DPP force gauge moving .05 inches.

7. REPAIR OF MT TEST STAND

If MT test stand becomes damaged, please contact a local AMETEK distributor to obtain spare parts or repair service.

8. PRODUCT WARRANTY

This instrument is warranted against defects in workmanship, material and design for one (1) year from date of delivery to the extent that AMETEK will, at its sole option, repair or replace the instrument or any part thereof which is defective, provided, however, that this warranty shall not apply to instruments subjected to tampering or abuse, or exposed to highly corrosive conditions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED AND AMETEK HEREBY DISCLAIMS ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY. AMETEK SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, ANY ANTICIPATED OR LOSS PROFITS.

This warranty is voidable if the purchaser fails to follow any and all instructions, warnings, and cautions in the instrument's Instruction Manual.

If a manufacturing defect is found, AMETEK will replace or repair the instrument or replace any defective part thereof without charge; however, AMETEK's obligation hereunder does not include the cost of transportation which must be borne by the customer. AMETEK assumes no responsibility for damage in transit, and any claims for such damage should be presented to the carrier by the purchaser.

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